

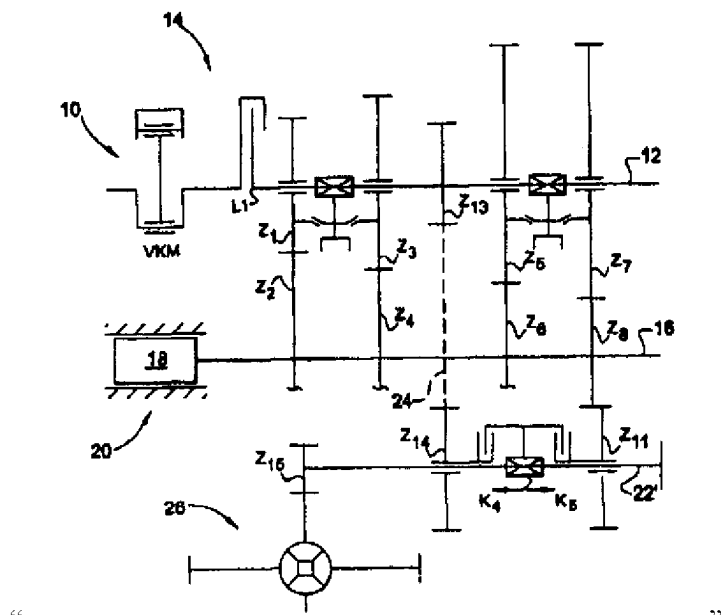
UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,640,088 B2
APPLICATION NO. : 10/017731
DATED : October 28, 2003
INVENTOR(S) : Timothy A. Thomas, Xiangyang Zhuang and Frederick W. Vook

Page 1 of 7

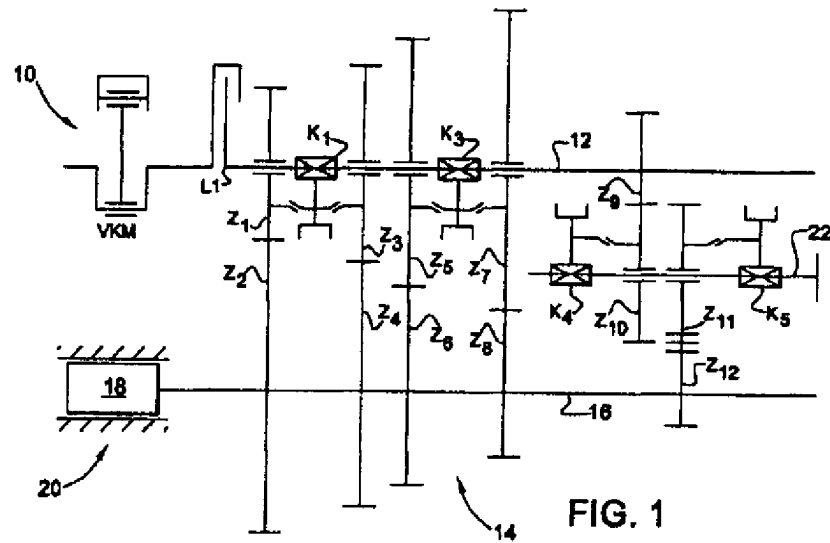
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Please delete drawing figure on title page

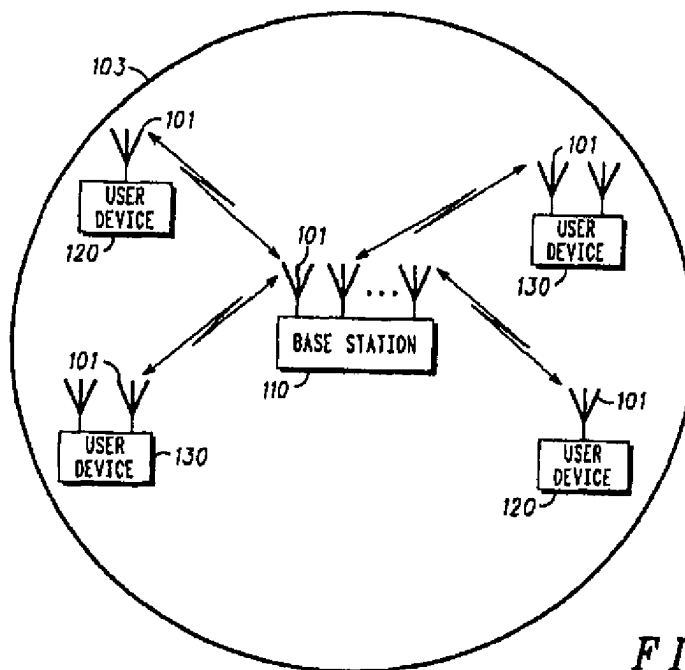


Please insert on the title page the drawing figure that is illustrated as it is shown here attached

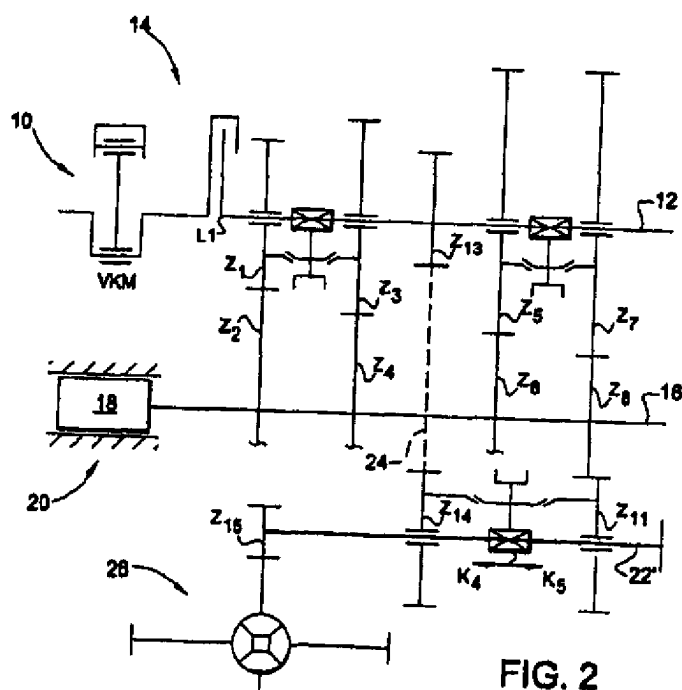
Please delete drawing figure 1



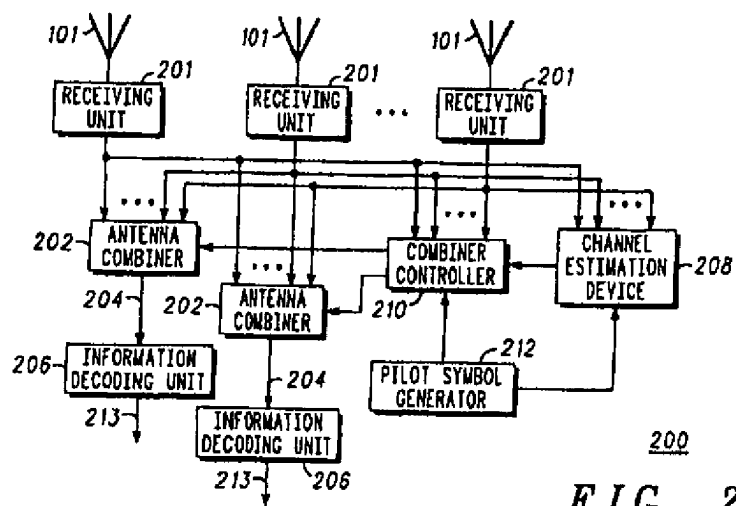
Please insert drawing figure 1 as illustrated below



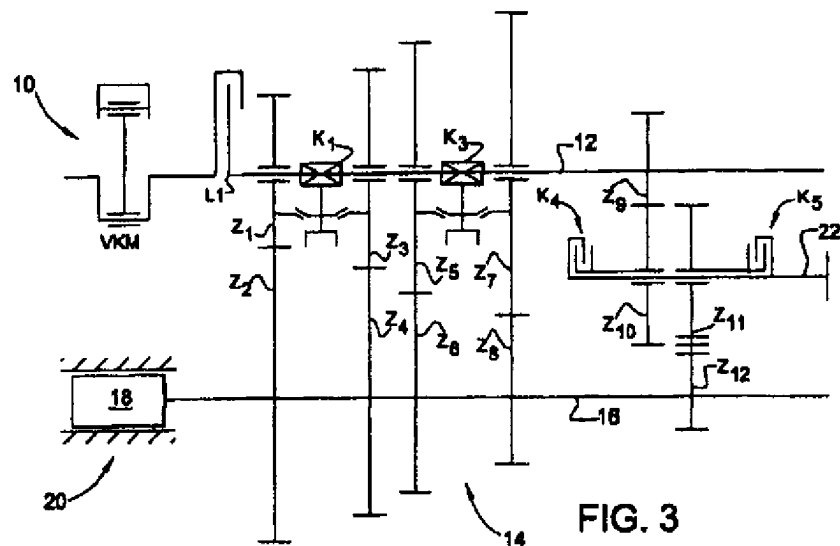
Please delete drawing figure 2



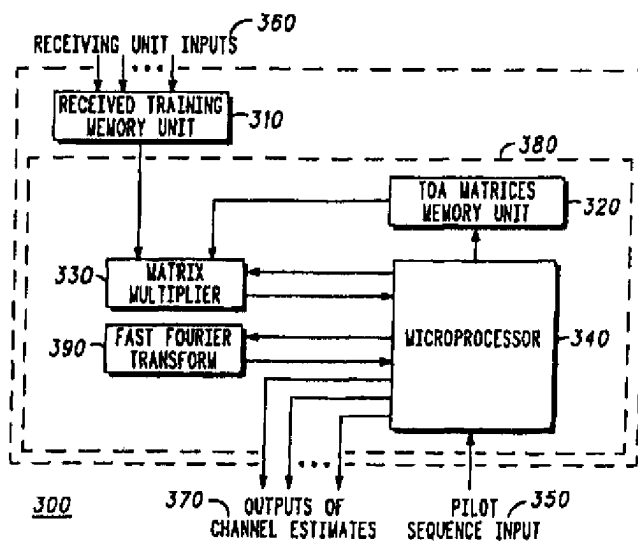
Please insert drawing figure 2 as illustrated below



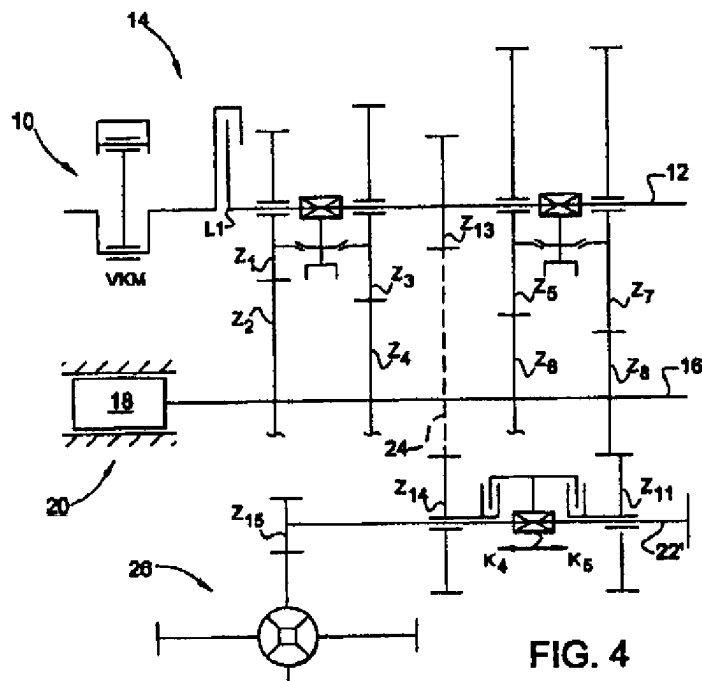
Please delete drawing figure 3



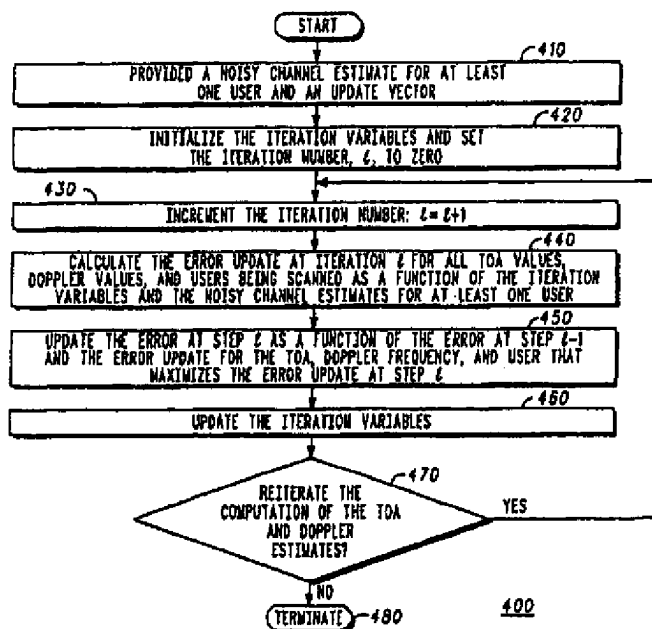
Please insert drawing figure 3 as illustrated below



Please delete drawing figure 4



Please insert drawing figure 4 as illustrated below



Column 14:

Line 30, claim 1 please delete “die” and replace with “the”

Line 39, claim 2 please delete “cap” and replace with “tap”

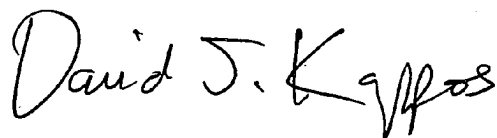
Line 56, claim 4 please delete “Function” and replace with “function”

Column 15:

Line 10, claim 6 please delete “For” and replace with “for”

Signed and Sealed this

Twelfth Day of January, 2010

A handwritten signature in black ink that reads "David J. Kappos". The signature is written in a cursive, flowing style with a large initial 'D' and 'K'.

David J. Kappos
Director of the United States Patent and Trademark Office

(12) **United States Patent**
Thomas et al.

(10) **Patent No.:** US 6,640,088 B2
(45) **Date of Patent:** Oct. 28, 2003

(54) **METHOD AND SYSTEM FOR ADAPTIVE CHANNEL ESTIMATION TECHNIQUES**

6,501,747 B1 * 12/2002 Friedlander et al. 375/148

OTHER PUBLICATIONS

(75) **Inventors:** Timothy A. Thomas, Palatine, IL (US);
Xiangyang Zhuang, Hoffman Estates, IL (US);
Frederick W. Vook, Schaumburg, IL (US)

M. D. Macleod, "Joint Detection and High Resolution ML Estimation of Multiple Sinusoids in Noise," in Proc. ICASSP 2001, Salt Lake City, Utah, May, 2001.

(73) **Assignee:** Motorola, Inc., Schaumburg, IL (US)

Bauguo Yang, Khaled Ben Letaief, Roger S. Cheng and Zhigang Cao; "Channel Estimation for OFDM Transmission in Multipath Fading Channels Based on Parametric Channel Modeling"; IEEE Transactions on Communications, vol. 49, No. 3, Mar. 2001 pp. 467-479.

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 28 days.

T. A. Thomas, Fred W. Vook, Kevin L. Baum, "Least-Squares Multi-User Frequency-Domain Channel Estimation for Broadband Wireless Communication Systems," 37th Allerton Conference, Monticello, IL, Sep. 1999, 10 pages.

(21) **Appl. No.:** 10/017,731

(22) **Filed:** Dec. 14, 2001

* cited by examiner

(65) **Prior Publication Data**

US 2003/0114164 A1 Jun. 19, 2003

Primary Examiner—Edward F. Urban

Assistant Examiner—Lana Le

(51) **Int. Cl.⁷** H04B 17/00; H04L 27/06

(74) **Attorney, Agent, or Firm**—Kenneth A. Haas

(52) **U.S. Cl.** 455/67.11; 455/67.14;
455/67.13; 455/67.16; 375/340; 375/148

(57) **ABSTRACT**

(58) **Field of Search** 455/67.1, 67.3,
455/452, 67.11-67.14; 375/340, 230, 148

The invention provides a method of determining an adaptive channel estimation by providing a channel estimate, determining at least one channel condition, and determining an adapted channel estimate as a function of the channel estimate and the channel condition.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,251,233 A * 10/1993 Labedz et al. 375/230

8 Claims, 4 Drawing Sheets

